

REMARKS

Reconsideration of the present application is respectfully requested. Claims 1, 3, 6, 8, 11, 19, 22, and 30 have been amended. Claims 13-18, 24-29, and 32-33 have been canceled. Claims 36-38 have been added. No new matter has been added. **Applicants hereby respectfully request a telephone interview with the Examiner to be held before the Examiner's issuance of an office action in response to this RCE.**

Claim Rejections

Independent claims 1, 8, 19, 30, and 34 stand rejected under 35 U.S.C. § 102(a) based on Tehloh (US 2003/0014523). Applicants respectfully traverse the rejections.

Claim 34 recites:

34. A method, comprising:
in a first storage server, **constructing a representation to reference each memory block used to store a file system**, the memory blocks being part of a first set of mass storage devices comprising at least one mass storage device coupled locally to the first storage server; and
sending at least a portion of the representation to a second storage server, said portion comprising information to allow reconstruction of the entire representation by the second storage server so that the second storage server has a representation of memory blocks of a second set of mass storage devices comprising at least one mass storage device coupled locally to the second storage server used to store the file system.
(Emphasis added)

In contrast, Tehloh also does not teach or suggest the limitations of constructing a representation to reference each memory block used to store a file system; and sending at least a portion of the representation to the second storage server, said portion comprising information to allow reconstruction of the entire representation by the second storage server. The Examiner alleges that Tehloh discloses building a bit map to represent the file system. However, no part of

the bit map is sent to the remote site (the mirror site). Information that identifies the storage locations, such as volume paths, is not part of the bit map. Even assuming *arguendo* that information identifying storage locations, such as volume paths, can be considered as part of the bit map, Tehloh does not teach or suggest that such information can be used by the remote site to reconstruct the entire bit map.

Thus, at least for the above reasons, claim 34 and all claims which depend on it are patentable over Tehloh.

New independent claim 36 recites limitations similar to the limitations discussed above for claim 34. At least for the reasons discussed above for claim 34, new claims 36 and all claims which depend on it are patentable over Tehloh.

Claim 1, as currently amended, recites:

1. A method for mirroring data on a first storage server and a second storage server, the method comprising:
 - queuing write commands in a temporary storage of the first storage server between consistency points, wherein each consistency point is an event characterized by executing the write commands queued in the temporary storage to write data corresponding to a file system of the first storage server to a local mass storage device coupled to the first storage server;**
 - at a start of each consistency point, sending the write commands queued in the temporary storage to the local mass storage device and to a remote mass storage device coupled to the second storage server;**
 - updating memory blocks of the local and remote mass storage devices based on the write commands; and
 - at an end of each consistency point constructing a representation to reference each memory block of the local mass storage device that is in use to represent the file system; and**
 - sending at least a portion of the representation to the second storage server, said portion comprising information to allow reconstruction of the entire representation by the second storage server.**

(Emphasis added).

Firstly, Tehloh does not teach or suggest the limitation of queuing write commands in a temporary storage of the first storage server between consistency points, wherein each consistency point is an event characterized by executing the write commands queued in the temporary storage to write data corresponding to a file system of the first storage server to a local mass storage device coupled to the first storage server. Tehloh discloses queuing data to be transferred from local site to a remote site. However, as disclosed in Tehloh (see Figure 3 and corresponding discussion of Tehloh), data is queued after the data has been written to a storage of the local site by executing the corresponding write requests. In contrast, as recited in claim 1, a write command is essentially queued before the write command is executed to update the local storage.

Tehloh also does not teach or suggest the limitation of at a start of each consistency point, sending the write commands queued in the temporary storage to the local mass storage device and to a remote mass storage device coupled to the second storage server (emphasis added). As discussed above, in Tehloh, data of a write request is queued after the write request has been executed. Thus, instead of queuing write commands first and then sending them to both the local and remote storages for execution at a particular point (i.e., the start of a consistency point), Tehloh is essentially executing the write commands at the local storage first, then queuing the write requests, and then sending the write commands to the remote storage.

Furthermore, for the reasons discussed above for claim 34, Tehloh also does not teach or suggest the limitations of constructing a representation to reference each memory block of the local mass storage device that is in use to represent the file system; and sending at least a portion of the representation to the second storage server, said portion comprising information to allow reconstruction of the entire representation by the second storage server.

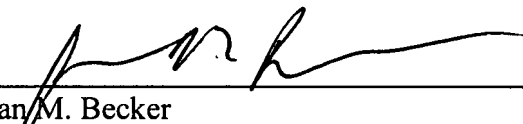
Thus, at least for the foregoing reasons, Tehloh does not teach or suggest the above emphasized limitations of claim 1. Therefore, claim 1 and all claims which depend on it are patentable over Tehloh.

Independent claims 8, 19, and 30 each recite limitations similar to those discussed above for claim 1. For similar reasons, claims 8, 19, 30 and the claims which depend on them are also patentable over Tehloh.

If any additional fee is required, please charge Deposit Account No. 02-2666.

Respectfully submitted,
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